UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,736	12/29/2000	Migaku Takahashi	OSP-10239	4239

466 7590 02/04/2003

YOUNG & THOMPSON
745 SOUTH 23RD STREET 2ND FLOOR
ARLINGTON, VA 22202

EXAMINER
UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
1773	8

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-8

Office Action Summary	Application No. 09/720,736	Applicant(s) TAKAHASHI ET AL.	
	Examiner Nikolas J. Uhlir	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 25-38* is/are pending in the application.

4a) Of the above claim(s) *16-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 25-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Claims 16-24 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The abstract of the disclosure is objected to because it is more than one paragraph and is too long. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The terms "generally perpendicular" and "generally horizontal" in claim 6 are relative terms which render the claim indefinite. These terms are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The major issue is with the term generally, in that this term is subject to different interpretations by different

people. How far away from vertical or horizontal can the axis of hard magnetization and the axis of easy magnetization be in order to be considered "generally perpendicular" and "generally horizontal" to the surface of the film?

7. Claim 11 requires that the FeC film be formed on a thin film having "almost the same interatomic distance" as that of the FeC film. It is unclear to the examiner what the scope of "almost the same interatomic distance" covers. What range of interatomic distances is suitable?

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-6, 11, 15, and 35-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al. (JP11-186033).

10. For the purpose of this investigation, the examiner has utilized a machine translation of JP11-186033 to supply the basis of this rejection. All references cited below towards Takahashi et al. refer to this machine translation unless otherwise specifically noted. A copy of the translation accompanies this office action.

11. Further for the purpose of this office action, the examiner interprets "α' phase" as required by the instant claims to be synonymous with a "martensite"

phase, as is commensurate with the description of the α' phase on page 23 of the instant specification.

12. With respect to the limitations of claims 1 and 2, Takahashi et al. (hereafter Takahashi) teaches a vertical magnetic recording medium that utilizes a martensite phase FeC film (section 14). Such a film meets all of the applicants claim 1 requirements. In addition, no other phases are taught to be present in the martensite film of Takahashi, thus the examiner takes the position that the limitations of claim 2, which require an FeC film comprising a single α' phase are met.

13. Regarding the limitations of claim 3, wherein applicant requires a specific X-Ray diffraction pattern for the FeC film. In light of the fact that the film of Takahashi et al. is formed of the same elements (Fe and C) and is in the same phase (α'/martensite) as that of film required by the applicant in claim 1, the examiner takes the position that the film of Takahashi et al. will necessarily meet the requirements of claim 3. Applicants are respectfully reminded that it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily on inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows

a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prime facie* case can be rebutted by ***evidence*** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433.

14. Regarding the limitations of claim 4, wherein the applicant requires the FeC film to have a c-axis as the hard axis of magnetization, a c-plane be the easy axis of magnetization, and to be in a body centered tetragonal (BCT) crystal structure. Takahashi teaches that the FeC film has a BCT crystal structure and exhibits perpendicular magnetization (sections 10 and 11). The examiner takes the position that because the FeC film exhibits perpendicular magnetization, it meets the magnetization requirements of claim 4.

15. Regarding claim 5, wherein the applicant requires the magnetic anisotropy energy for deflecting the spontaneous magnetization towards the c-axis from the c-plane be 2 orders of magnitude larger than the magnetic anisotropy energy required when the spontaneous magnetization is deflected from the c-axis to the c-plane. Although not expressly taught by Takahashi, the examiner takes the position that this limitation is met, as the film of Takahashi has the same composition and is in the same phase as that of the instantly claimed invention. The applicant is respectfully directed to the citation of In Re Best located above.

16. With respect to the limitations of claim 6, wherein applciant requires the hard axis of the film to be generally perpendicular to the film surface and the

easy axis to be generally horizontal to the film surface. These limitations are met as set forth above for claim 4, as it has already been established that the film of Takahashi exhibits magnetization that is oriented perpendicular to the film surface, thus having the hard axis perpendicular to the film surface, and the easy axis horizontal to the film surface.

17. Regarding claim 11, Takahashi et al. teaches forming the FeC film on a 30nm thick film of Iron (section 14). It is the examiners position that the film of Iron meets the limitations of claim 11, which requires that the FeC film be formed on a film having almost the same interatomic distance. This is due to the fact that claim 13 specifically lists Iron as a suitable material meeting the requirements of claim 11.

18. Regarding the limitations of claim 15, wherein the applicant requires an FeC film having negative magnetocrystalline anisotropy constants (ku). Although not expressly taught by Takahashi, the examiner takes the position that these limitations are met, as the film of Takahashi et al. is made of a similar composition (FeC), has an identical crystal structure (bct), and is in the same phase (α'/martensite) as the films shown by figure 16 of the instant specification that possess this property. Applicant is referred to the citation of In re Best above.

19. Regarding claims 35-38, The limitations of these claims are intended use limitations and do not appear to be further limiting in so far as the structure of the product is concerned. "[I]n apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the

prior art in order to patentably distinguish the claimed invention from the prior art. **If the prior art structure is capable of performing the intended use, then it meets the claim.** In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art." *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). See MPEP § 2111.02. In the instant case, it is the examiners position that the FeC film is capable of performing the intended uses of claims 35-38, as it is identical in composition, phase, and crystal structure as that of the film claimed in the instant claim 1.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

21. Claims 7-8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. as applied to claim 1 above, further in view of Hori et al. (US5068147).

22. Takahashi et al. as applied to claim 1 above fails to teach an FeC film that contains 0.5-15 atomic% C, more specifically 1-12 atomic % C, with the balance being Fe, as required by claims 7 and 8.

23. However, figure 18 of Hori et al. clearly elucidate how the amount of carbon in a Fe-C film impacts the saturation magnetization and coercive force of

an FeC layer. As shown by figure 18, as the amount of C in an FeC film goes up, the saturation magnetization goes down, and vice versa. Thus, the examiner take the position that the amount of Carbon in the FeC film taught by Takahashi et al. is a results effective variable.

24. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to change the amount of carbon in the FeC film of Takahashi et al. in order to obtain a desired saturation magnetization.

25. Takahashi et al. fails to teach adding nitrogen as a third element to an FeC film, as required by claim 10.

26. However, figure 33 of Hori et al. illustrates how adding a third element such as nitrogen can increase the coercivity of the resulting film.

27. Therefore it would have been obvious to one of ordinary skill in the art to add nitrogen as taught by hori et al. into the FeC film of Takahashi et al.

28. One would have been motivated to make such a modification in order to obtain a desired level of coercivity for the resulting film. Further, tailoring coercivity and other magnetic properties to meet application requirements is old in the art.

29. Regarding the combination of Hori et al. with Takahashi. The examiner acknowledges that these two references are directed towards different end products (recording media for Takahashi, Magnetic head for Hori), however, both patents use similar materials (FeC) in their preparation. Hori et al. is merely cited to illustrate how the concentration of the elements that make up an FeC based

film impact the resulting properties of the film. In this respect, the references are clearly not non-analogous art.

30. Claims 9, 11-12 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. as applied to claim 1 above, and further in view of Hori et al. (US5006395).

31. For the purpose of clarity, this Hori reference will be referred to as Hori '395.

32. Takahashi as applied to claim 1 above fails to teach adding Co as a third element to a FeC film, as required by claim 9.

33. However, Hori '395 teaches that adding Co to an FeC film improves the coercive force of the film (column 18, example 9).

34. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to add Co as taught by Hori '395 to the FeC film of Takahashi.

35. One would have been motivated to make this modification due to the teaching in Hori '395 that the coercive force of an FeC film is improved by the addition of Co to the film.

36. Takahashi as applied to claim 1 above fails to teach forming the FeC film on a substrate film which has almost the same lattice constant as that of the FeC film as required by claim 12, specifically where the substrate film is principally formed from one of the materials listed in claim 14.

37. The examiner interprets the phrase "almost the same lattice constant" to mean "4 angstroms +/- 10%" as this phrase is defined to mean such on page 29 of the instant specification.

38. However, Hori '395 teaches that by forming an FeC based film on a substrate film that is made from the Pt group elements, the orientation of the FeC film is improved (column 2, lines 40-52). It is noted that "pt group" elements are generally known to include Platinum, Palladium, Rhodium, Ruthenium, Osmium, and Iridium

39. Therefore it would have been obvious to one of ordinary skill in the art to form utilize Platinum, Palladium, Rhodium, Ruthenium, Osmium, and Iridium as taught by Hori 395' as the substrate for the FeC film of Takahashi.

40. One would have been motivated to make such a modification due to the teaching in Hori '395 that the orientation of an FeC film is improved by utilizing a substrate formed of one of these materials. Regarding the specific selection of Pt group materials for the substrate, one would have been motivated to select these materials as they are taught to be equivalent to the other materials listed as suitable.

41. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. as applied to claims 1 and 11 above, as evidenced by Ohnami et al. (US6255006).

42. The examiner has interpreted claim 13 to require that the FeC film be formed on a thin Fe film having the (200) plane as its surface, and not to simply require only an Fe film having a (200) surface.

43. Regarding the limitations of claim 13, wherein the applicant requires the FeC film to be formed on a Fe film having the (200) plane as the surface. The examiner acknowledges that while Takahashi et al. teaches forming an FeC film on a Fe film, Takahashi et al. fails to teach that the Fe film has the (200) plane as its surface. However, it is old and well known in the art of magnetic recording that the crystallographic orientation of a substrate layer upon which a magnetic layer is grown impacts the crystal structure of the magnetic layer. As shown by US6255006 to Ohnami et al. it is known that a magnetic layer adopts the crystal structure of the layer upon which it is grown (see column 3, lines 29-35 and column 5, lines 10-36). Thus, the examiner takes the position that it the crystal structure of the surface of the Fe film substrate layer of Takahashi et al. is a results effective variable.

44. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to change crystal structure of the Fe film utilized in Takahashi et al. in order to form an FeC film having a desired crystal structure and orientation.

45. Claims 1 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al. (US4953051) in view of Takahashi et al. (JP11-186033) as evidenced by The Wiley Encyclopedia of Electrical and Electronics Engineering, Dec. 27, 1999.

46. It should be noted that the Wiley Encyclopedia reference cited is an online article that can be located online

www.mrw.interscience.wiley.com/eeee/05/4505/W.4505-3. A copy of this reference has been supplied with this office action.

47. Regarding the limitations of claim 25-27, Wada et al. teaches a magnetic recording head that is suitable for either longitudinal or perpendicular magnetic recording. This recording head utilizes a soft magnetic film in both the head and slider portions of recording head (column 2, lines 62-68). This soft magnetic film preferably possesses a saturation magnetic flux density of greater than 10 kilogauss. FeC can be employed for this purpose (column 4, lines 10-35). It is noted that the higher magnetic saturation is desirable in the art of magnetic recording, as it allows recording to be performed on high coercive force media, as shown by column 1, lines 20-30)

48. However, Wada et al. does not teach the use of an FeC film that is an α' (martensite) phase as required by claims 1 and 25-29.

49. However, Takahashi teaches a martensite phase FeC film that exhibits high saturation magnetization.

50. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to use the FeC film of Takahashi as the soft magnetic film utilized by Wada et al.

51. One would have been motivated to make this modification due to the teaching in Wada et al. that >10kg soft magnetic materials such as FeC were desirable for forming the soft magnetic film, the teaching that higher magnetic saturation soft magnetic films are desirable in magnetic heads, and the fact that the FeC film of Takahashi possesses magnetic saturation which possesses high

magnetic saturation, which would allow the head of Wada et al. to record on even high coercivity media.

52. Regarding the combination of Wada et al. with Takahashi et al. While it is noted by the examiner that these documents are directed towards different end products, the use of similar soft magnetic materials in both recording media 9i.e for keeper layers) and recording heads is known. Thus, one of ordinary skill in the art of magnetic heads would have known to look in the art of magnetic recording media for information on good soft magnetic materials. Thus, these references are not non-analogous art.

53. Regarding the limitations of claim 28 and 29, which require that recording head be suitable for recording information on a moving longitudinal (hard axis in plane with substrate) or perpendicular (hard axis perpendicular to plane of substrate) media. Examples 1 and 2 (columns 7 and 8) of Wada et al. teach examples of a recording head meeting these requirements.

54. Claims 1 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US5854727), in view of Takahashi et al. (JP11-186033).

55. Regarding claims 32-33 wherein the applicant requires a magnetic device comprising a hard magnetic film serving as a recording layer of a perpendicular recording medium, an α' phase FeC thin film formed under the hard magnetic film, and an intermediate layer formed between the FeC layer and the recording layer. Tanaka et al. teaches a magnetic recording medium comprising a substrate, a soft magnetic underlayer on the substrate, a perpendicular magnetic

recording layer (equivalent to applicants hard magnetic layer) formed overtop the soft under layer, and an intermediate layer formed between the soft layer and recording layer.. The Soft underlayer is manufactured from materials including FeC, Permalloy, and Sendust (column 6, lines 11-37). As

56. Tanaka et al. does not teach a recording medium that utilizes an α' FeC layer, as required by claims 32-33.

57. However, Takahashi teaches an α' FeC material that exhibits high saturation magnetization, which is known in the art to be desirable in keeper layers, as evidenced by The Wiley Encyclopedia of Electrical and Electronics Engineering under the section entitled "Keeper-Layered Media."

58. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the α'/martensite phase FeC film of Takahashi as the soft magnetic layer in Tanaka et al.

59. One would have been motivated to make this modification due to the fact that Tanaka et al. teaches that FeC materials are suitable soft magnetic materials for the underlayer, the fact that it is known that high saturation magnetization is desirable for keeper (soft magnetic) layers, and the fact that the FeC film of Takahashi is specifically taught to exhibit high magnetic saturation.

60. Claims 1 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (WO93/12928) in view of Tanaka et al., further in view of Tanahashi et al. as evidenced by The Wiley Encyclopedia of Electrical and electronics Engineering.

61. Regarding the limitations of claims 30 and 31, which require a magnetic device comprising a hard magnetic film constituting a longitudinal magnetic recording medium, an α' phase FeC thin film formed on the hard magnetic film, and an intermediate layer between the hard magnetic film and the FeC film.

62. The examiner interprets "on" to mean that the FeC film is formed above the hard magnetic film, but is open to other layers being present between the FeC layer and the recording layer.

63. Reed et al. teaches a magnetic recording medium that comprises a substrate, a longitudinal or vertical magnetic recording layer (equivalent to applicants claimed hard magnetic material) on the substrate, a non-magnetic break layer (equivalent to applicants claimed non-magnetic thin film) on the magnetic layer, and a soft magnetic material formed overtop the break layer (Page 8, lines 1-15). Suitable materials for the soft magnetic material include soft magnetic materials utilized known in the art, examples of which include alloys of Fe, Ni, and Co, such as NiFe, Sendust, CoZrNb, and others (page 20, lines 9-19).

64. Red et al. fails to teach utilizing an α'/martensite phase FeC film as the soft magnetic layer.

65. However, Tanaka et al. teaches known soft magnetic materials for use as keeper layers in magnetic recording media include FeC, NiFe, sendust, and CoZrNb.

66. Therefore it would have been obvious to one of ordinary skill in the art to use an FeC alloy as the soft magnetic layer of Reed et al.

67. One would have been motivated to make this modification due to the fact that FeC is taught to be equivalent to NiFe, sendust, and CoZrNb. Applicaqnts are respectfully reminded that substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In Re Fount* 213 USPQ 532 (CCPA 1982); *In Re Siebentritt* 152 USPQ 618 (CCPA 1967); *Grover Tank & Mfg. Co. Inc V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

68. However, Reed et al. as modified by Tanaka et al. still fails to teach using an α' phase FeC.

69. However, it is known in the art that high magnetic saturation materials must be utilized to form keeper layers, as evidenced by the Wiley Encyclopedia under the section entitled "Keeper Layered Magnetic Media." Further, Takahashi et al. teaches an FeC film that exhibits high magnetic saturation. This film is a martensite (α') phase FeC film.

70. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the α'/martensite phase FeC film of Takahashi et al. as the soft underlayer of Reed et al. as modified by Tanaka et al.

71. One would have been motivated to make this modification due to the fact that FeC is recognized as an equivalent soft magnetic material with respect to NiFe, sendust, and CoZrNb, the fact that high saturation magnetization materials must be utilized to form a keeper layer, and the fact that martensite phase FeC is taught to exhibit high saturation magnetization.

Examiners Note

72. The examiner, while not wishing to direct the applicant in any way, respectfully requests the applicant amend claim 13 to clarify the requirements of the claim, as the limitations of the claim are written unclearly. The claim as now written is open to the interpretation that simply a Fe film having a (200) plane as the surface is required. However, it is clear from the specification that the applicants intended to claim this Fe film as a substrate for the α' FeC film.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhlir whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

nju
January 27, 2003

STEVAN A. RESAN
PRIMARY EXAMINER